

**ABSTRACT**

The present invention provides a permanent-magnet-synchronous-motor having a stator with concentrating windings with the following structure so that permanent magnet (6) is hard to subjected to demagnetization magnetic field: 0.3  $L_g < L_a \leq 2.0 L_g$ , where  $L_a$  is a clearance between teeth of stator (1), and  $L_g$  is an air-gap between stator (1) and rotor (2), and yet outer walls of both ends of the permanent magnet (6) disposed within rotor (2) in a rim direction are tapered toward inside from a rotor rim in a radial direction and thus form recessed section on the outer walls of the magnets. As a result, withstanding force against demagnetization is expected to increase.